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FINAL REPORT

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Work funded by the grant consisted of a series of experiments designed to elucidate scales and forcing mechanisms of the circulation and water properties within Santa Monica / San Pedro basin. Each experiment consisted of a moored array of roughly 30 current meters, CTD surveys (usually upon deployment and retrieval of the moored array), and satellite imagery. The CROSS moored array was designed primarily to obtain information on cross-shelf and cross-basin coherence scales, vertical coherence scales and the principal forcing mechanisms for the circulation. In the second field program (BASIN; May - October 1986), the moored array was expanded to include San Pedro basin and the San Diego Trough, focusing on around-the-basin and alongslope coherence scales. The third field program (SILL; April - October 1987), in which all of the Santa Monica and San Pedro sills were instrumented with moored arrays, was designed primarily to investigate exchange between the Santa Monica-San Pedro basin and the adjacent basins. A final experiment (Transition; February - October 1988), focused on the spring transition period and on the circulation of Santa Monica bay and its relationship to the basin flow field. Lagrangian drifter experiments from winter and summer of 1990 were included in the analysis. These data provide a broader spatial context for the Eulerian measurements as well as some insight into actual particle trajectories and particle residence times in the surface layers of the Southern California Bight.

Eight papers have been published, two are under review and two are in preparation:

- Hickey, B.M. (1989) Poleward flow at the northern and southern boundaries of the U.S. west coast. In: S.J. Neshyba, Ch. N.K. Mooers, R.L. Smith and R.T. Barber (eds), Coastal and Estuarine Studies: Poleward Flows Along Eastern Ocean Boundaries. pp 160-175, Springer-Verlag.
- Jackson, G., F. Azam, A. Carlucci, R. Eppley, B. Finney, D. Gorsline, B. Hickey, C.-A. Huh, R. Jahnke, I. Kaplan, M. Landry, L. Small, M. Venkatesan, P. Williams and K. Wong (1989) Elemental cycling and fluxes off the coast of southern California. EOS 70.
- Hughes, R.L., K.N. Ofofu and B. Hickey (1990) On the behavior of boundary undercurrents near canyons. *Journal of Geophysical Research* 95 (C1): 20,259-20,266.
- Huh, C.-A., S. Niemi, L. Small, B. Finney, B. Hickey, N. Kachel, D. Gorsline and P. Williams (1990) Sedimentation dynamics in the Santa Monica-San Pedro basin off Los Angeles: radiochemical, sediment trap and transmissometer studies. *Continental Shelf Research* 10(2): 137-164.

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- Hickey, B.M. (1991) Variability in two deep coastal basins (Santa Monica and San Pedro) off southern California. *Journal of Geophysical Research* 96 (C9): 16,689-16,708.
- McConnaughey, R.A., D.A. Armstrong and B.M. Hickey (1992) Juvenile Dungeness crab (*Cancer magister*) recruitment variability and oceanic transport during the pelagic larval phase. *Canadian Journal of Fisheries and Aquatic Sciences* (49) 2028-2044.
- Hickey, B.M. (1992) Circulation over the Santa Monica-San Pedro basin and shelf. *Progress in Oceanography*. *Progress in Oceanography* (30): 37-115.
- Hickey, B.M. (1993) Physical oceanography. In: Hood, D. (ed.), Marine Ecology of the Southern California Bight, Pergamon Press.
- Ledwell, J.R. and B.M. Hickey (1993) Evidence for enhanced boundary mixing in Santa Monica Basin. *Journal of Geophysical Research*, submitted.
- Hickey, B.M. (In prep.) Renewal Mechanisms for two deep basins: Santa Monica and San Pedro.
- Dobbins, E. and B. Hickey (In prep.) Circulation and water properties of Santa Monica Bay. *Journal of Geophysical Research*.

Abstracts:

- 1986 Circulation over the Santa Monica/San Pedro basin and shelf. American Geophysical Union Fall Meeting, December 1986, San Francisco, California. EOS 67, No. 44.
- 1986 The West Coast regional program of the Department of Energy. American Geophysical Union Fall Meeting, December 1986, San Francisco, California. EOS 67, No. 44.
- 1987 The effect of a relatively narrow submarine canyon on shelf circulation. American Geophysical Union Fall Meeting, December 1987, San Francisco, California. EOS 68, No. 44.
- 1990 Below sill-depth circulation and renewal in a deep coastal basin. Ocean Sciences meeting, New Orleans. EOS 71, No 2, 84.
- 1992 Some effects of complicated topography on shelf and slope circulation. AGU Fall meeting, December 1992 EOS 73 No 43, supplement.
- 1993 Circulation and water properties of Santa Monica/San Pedro basin Eastern Pacific Oceanographic Congress, October 1993, Mt. Hood, Oregon. (B.M. Hickey)
- 1993 Circulation and water properties of Santa Monica/San Pedro basin Eastern Pacific Oceanographic Congress, October 1993, Mt. Hood, Oregon. (Dobbins, E. and B.M. Hickey)

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